4-BAND STEREO RADIO CASSETTE RECORDER

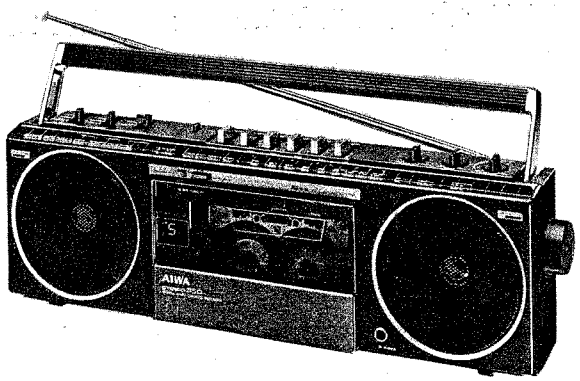
108

MODEL NO. CS-350LE,LK

AIWA®

[SERVICE MANUAL]

Code No. 29-350-000-76



DATE OF ISSUE 5/1981

SPECIFICATIONS

GENERAL

Semiconductors:	6 ICs, 28 transistors, 1 FET, 22 diodes, 5 LED's
Power source:	Batteries DC 9V (UM-2 x 6) LE, BLE model AC 220V, 50/60 Hz Household AC power (thru AC adaptor) LK, BLK model AC 240V, 50/60 Hz Household AC power (thru AC adaptor)
Speakers:	92mmφ x 2
Dimensions (WxHxD):	380 x 120 x 76 (mm)
Weight:	2kg

RADIO SECTION

Frequency range:	FM 87.4 ~ 108.3 MHz SW 5.8 ~ 18.5 MHz MW 515 ~ 1,650 kHz LW 145 ~ 320 kHz
Intermediate frequency:	FM 10.7 MHz SW,MW,LW 468 kHz
Sensitivity:	
(IHF, distortion 3%)	FM 20 ± 4 dB (at 88 MHz) 22 ± 4 dB (at 96 MHz) 24 ± 4 dB (at 108 MHz)
(S/N 10 dB)	SW 30 ± 5 dB (at 5.9 MHz) 18 ± 5 dB (at 10.0 MHz) 16 ± 5 dB (at 18.0 MHz)
(S/N 10 dB)	MW 49 ± 5 dB (at 600 kHz) 48 ± 5 dB (at 1,000 kHz, 1,400 kHz)
(S/N 10 dB)	LW 60 ± 5 dB (at 150 kHz) 58 ± 5 dB (at 200 kHz, 300 kHz)
FM stereo separation:	20 ± 5 dB (at 1 kHz)

TAPE RECORDER SECTION

Tape speed:	4.8 cm/s.
Recording system:	AC bias
Erasing system:	AC erase
Record bias frequency:	50 ± 0.05 kHz
Distortion:	Less than 1.0% (PB) Less than 1.5% (REC/PB)
Frequency response:	METAL tape: 35 ~ 16,000 Hz Normal tape: 35 ~ 12,500 Hz
Signal to noise ratio: (Un-weighted)	More than 50/48 dB [DC/AC] (PB) More than 46/45 dB [DC/AC] (REC/PB)
Erasing ratio:	More than 65 dB
Separation:	More than 22 dB (REC/PB)
Output:	2.5W + 2.5W (MAX)
FF time:	102 ± 5 s. (at C-60)
Rewind time:	91 ± 5 s. (at C-60)
Automatic stop system:	Mechanical auto stop
Pinch roller pressure:	$350\ ^{+30}_{-20}$ g. ($3.43\ ^{+0.29}_{-0.19}$ N)
Wow and flutter:	Less than 0.17% (WRMS)
Take-up torque:	50 ± 10 g-cm (0.49 ± 0.09 mN·m)
FF & rewind torque:	105 ± 15 g-cm (1.02 ± 0.14 mN·m)

- The specifications and external appearance of this set are subject to change without prior notice.

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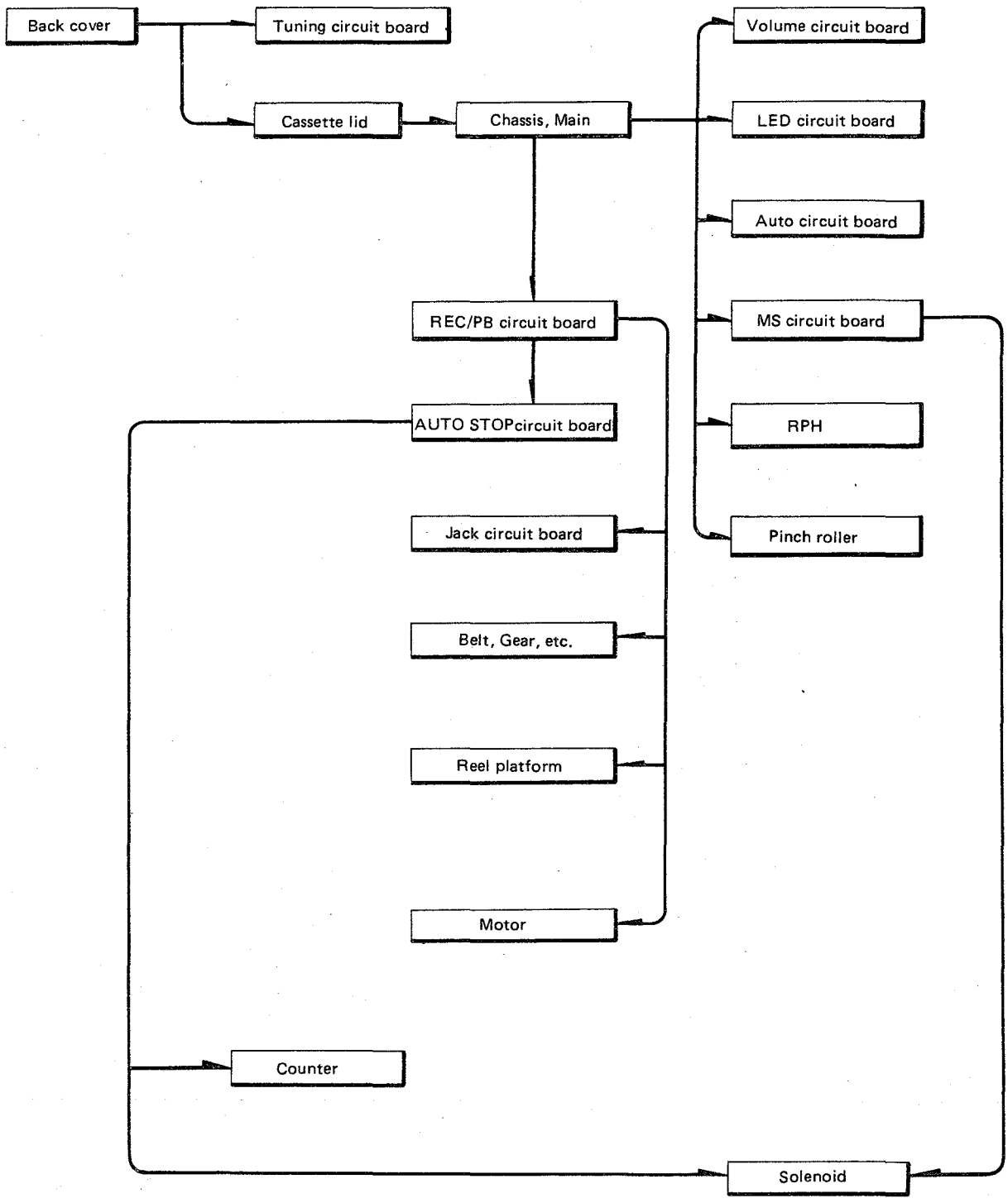
DISASSEMBLING CHART DIAGRAM OF MAIN PARTS

- To avoid troubles when disassembling or replacing the main parts, follow the chart diagram as below.



DISASSEMBLY INSTRUCTIONS

1. Removing the cassette lid

With this model, the method of removing the lid differs from the conventional method; please be careful.

1) Removing the cassette lid
Apply the palm of the hand to the left side of the cassette lid, and remove it while pressing it in the direction of the arrow. (See figure 1)

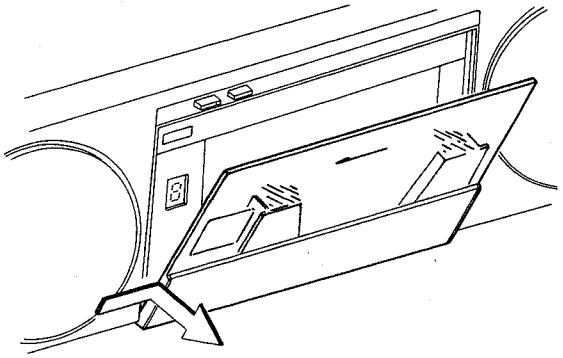


Fig. 1

2) Inserting the cassette
Insert the cassette in the same way as for removal after checking that the part marked * is at the position of the arrow. A click sound is generated when the cassette lid enters the main case. (See figure 2)

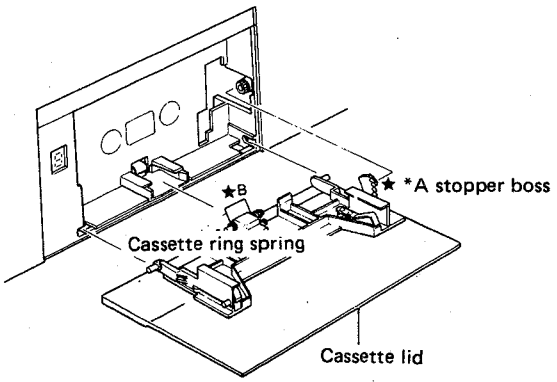
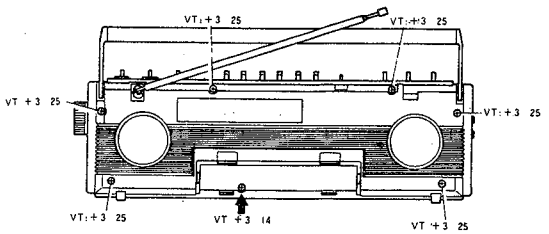


Fig. 2

* When A is not inserted correctly:
The cassette lid immediately comes out of the main case.
* When B is not inserted correctly:
The cassette lid does not open with the EJECT button pressed after the cassette is inserted.

2. Removing the rear lid

1) Remove 7 screws. (See figure 3)
Be careful in the engagement of the wire during assembly.



Note: Do not use screws other than those specified.

Fig. 3

Note: Do not use screws other than those specified in the positions marked with an arrow. The screw may protrude into the cassette box or it may become ineffective; be careful.

3. Removing the main chassis

1) Remove the cassette lid and 4 knobs.
2) Remove 3 screws.
3) Remove the spring. (See figure 4)

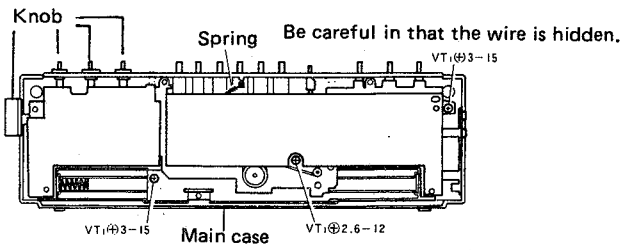


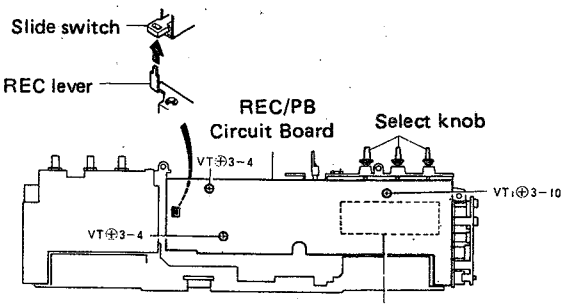
Fig. 4

4. Removing the REC/PB circuit board

With 3 screws detached, the select switch is caught by the main chassis, so the REC/PB circuit board can be lifted only approx. 30°; perform the work after separating it from the main case.

1) Remove the select knob.
2) Remove 3 screws.

Note: For installing the REC/PB circuit board again, install the select knob on the circuit board and check that the REC lever is inserted into the hole of the REC slide switch before assembling the REC/PB circuit board in the main case. (See figure 5)



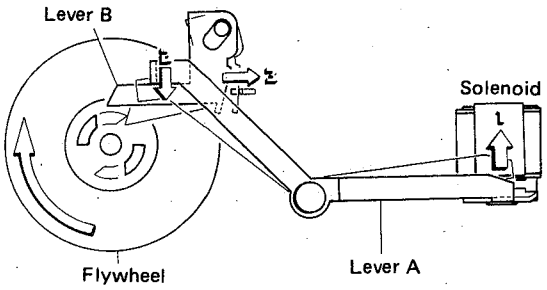
Be careful in that the lever switch is easily caught by the wire.

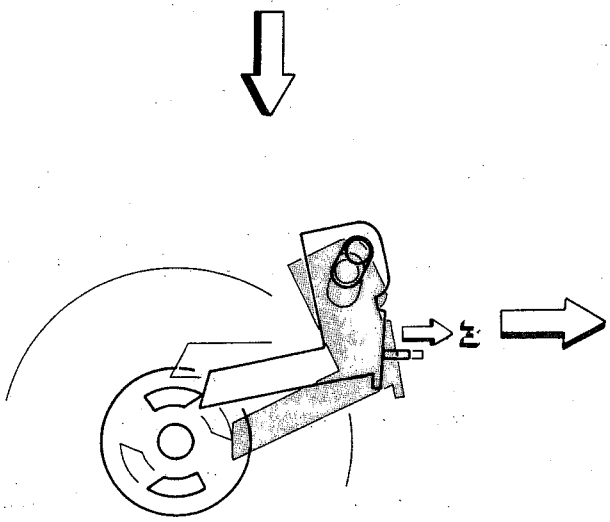
Fig. 5

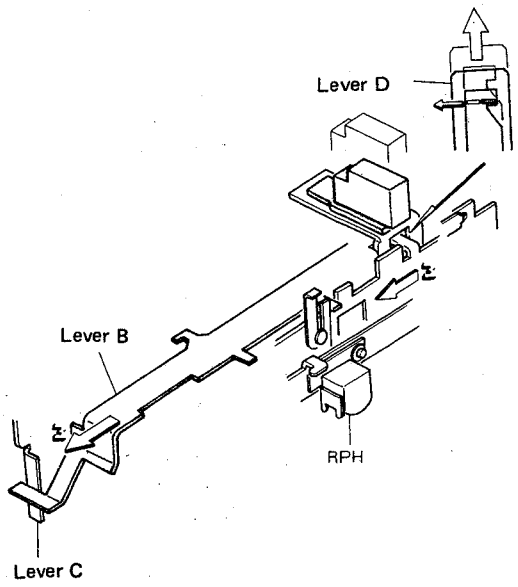
Description of the mechanical operation mechanism

Description of the PLAY button releasing operation

When the tape stops, the plunger operates to pull lever A in the direction of arrow 1 and simultaneously lever B is pressed in the direction of arrow 2 by lever A and touches the rotating flywheel, then lever B is pressed in the direction of arrow 3 to press the lever C in the direction of arrow 4, which releases interlocking lever D (direction of arrow 5).

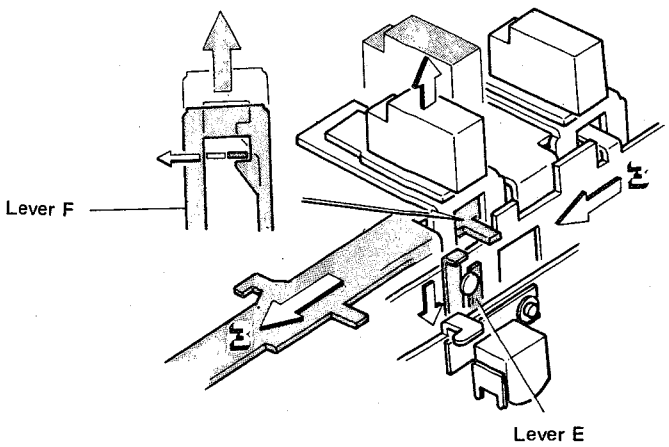






Description of the FF/REW button releasing operation during MS operation

When a non-recorded section is detected during MS operation, the plunger operates, and every lever (levers A–C) operates the same as in the PLAY operation, to release lever F (direction of arrow 6), and the interlocking lever E is released (lever E is pressed in the direction of arrow 5 when the FF/REW button is pressed).



Music sensor circuit

(Please refer to the circuit diagram to see the actual circuit)

1. Music sensor integrated circuit

1-1 Terminal connection

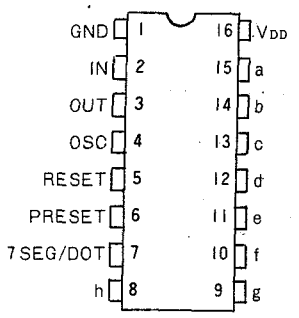


Figure 1.

1-2 Terminal

Terminal No.	Symbol	Items
1 , 16	GND, V_{DD}	Power supply
2	IN	Audio signal input
3	OUT	Solenoid control signal "Low", "High" pulse signal
4	OSC	Music interval time output pulse width OSC terminal
5	RESET	Reset terminal of preset data
6	PRESET	Preset terminal "Low" Preset, "High" shift up
7	7 SEG/DOT	7 segment/Dot selector "High" 7 segment, "Low" Dot
8 ~ 15	h ~ a	Direct preset input signal driver output terminal Input/Output type

Table-1

1-3. Explanation of operation

When the input signal at pin (2) drops to or below about $1/2V_{DD}-0.5V$ (when it is a DC signal), 32 oscillation periods are counted at pin (4) inside the IC; when pin (2) is in the interval I condition, it is detected as a interval. Then, when the desired music selection has been completed, a fixed time pulse is output to pin (3).

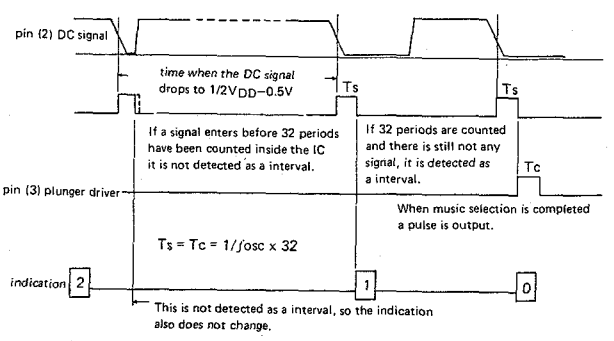

pin (2) DC signal
time when the DC signal drops to 1/2VDD−0.5V
Ts
Ts
If a signal enters before 32 periods have been counted inside the IC it is not detected as a interval.
If 32 periods are counted and there is still not any signal, it is detected as a interval.
Tc
pin (3) plunger driver
When music selection is completed a pulse is output.
Ts = Tc = 1/fosc x 32
indication 2
1
0
This is not detected as a interval, so the indication also does not change.

Figure 2.

1-4. Power supply, signal block diagram

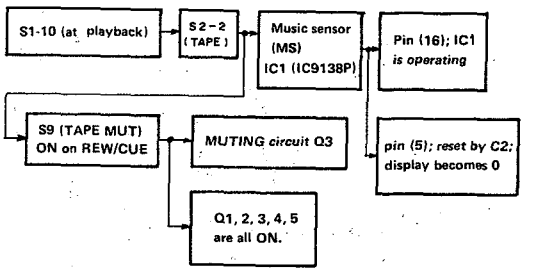

S1-10 (at playback)
S2-2 (TAPE)
Music sensor (MS) IC1 (IC9138P)
Pin (16); IC1 is operating
S9 (TAPE MUT) ON on REW/CUE
MUTING circuit Q3
pin (5); reset by C2; display becomes 0
Q1, 2, 3, 4, 5 are all ON.

Figure 3.

1-4-1. Count DOWN circuit

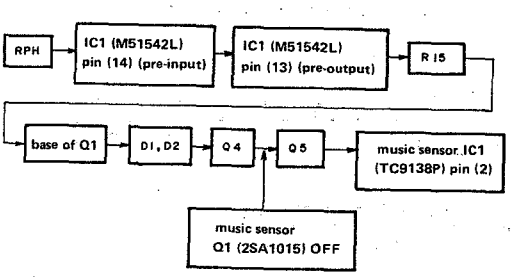


Figure 4.

1-4-2. Count UP circuit

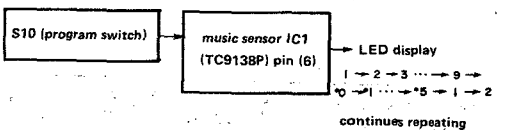


Figure 5.

On repair of the music sensor

The operation of the circuits of or related to the music sensor cannot always be understood just from the circuit diagram. This is because it is necessary to know the mechanical timing of the various switches of the mechanism button release mechanism. In addition, when the solenoid continues to operate for a long time and the mechanical release operation is performed two or more times, it is possible to correct the condition, without shortening the pull time electrically, by widening the gap between the solenoid and the lever.

1-5. Operation of solenoid

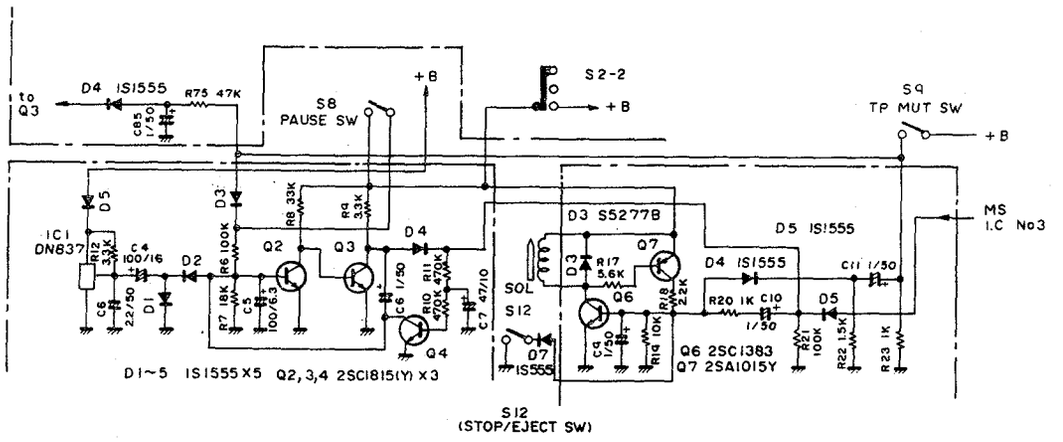


Figure 6.

1-5-1. Block diagram at the time of an auto stop

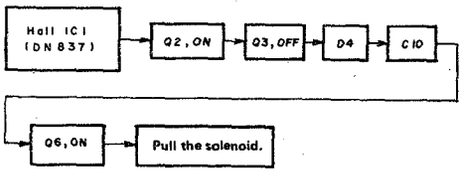


Figure 7.

However, S_8 (the pause switch) is in the pause condition. When S_9, the TP MUT switch, is ON, the operation of Q_2, Q_3, and Q_6 is the oppsite to that described above, and auto stop does not occur.

1-5-2. Block diagram at the time of MS

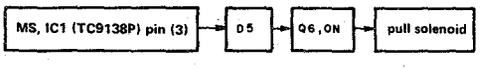


Figure 8.

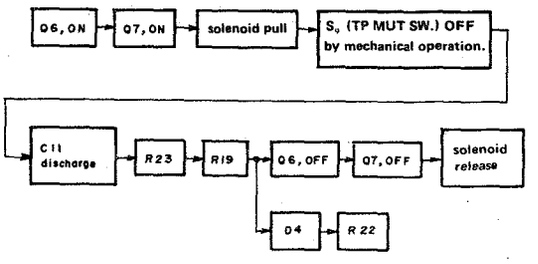


Figure 9.

1-6. Miscellaneous

1-6-1. Q_4 (2SC1815): *the case when Q_4 is absent*

When the music sensor (MS) is on CUE, only the F.F. button pops up at the tape END; the FWD button does not pop up. To prevent that, it is necessary in order to switch Q_2 OFF again.

1-6-2. Q_7 (2SA1015):

To release the flywheel and set the timing turn Q_6 ON; when ON turn Q_7 ON; reverse bias Q_6 by means of D_4, C_{11} and R_{23} to turn it OFF.

The music sensor (MS) is in the PLAY condition during REV; during PLAY, it is on auto stop; it is not on operation.

That is to say, this transistor is used to prevent the erroneous operation FF button UP FWD button UP during CUE.

This is to prevent the mechanism from rattling when the STOP button is pressed and held down after setting the music sensor to "1" and cueing or reviewing.

Reason: When it was stopped, input interpreted as a part between musical selections set the music sensor from "1" to "0", so Q6 remained ON.

1-6-4. Q_1 (2SA1015):

Music sensor (MS) signal muting action during playback. When this IC_1 (TC-9138P) indicates "0", when a signal enters pin (2) happens; this circuit is to prevent this from happening. When Q_1 is ON, Q_5 turns ON, cutting the signal off. This causes Q_1 to be turned ON by the output from the music sensor (MS) display.

That is to say, { (base input) / (emitter input) } when the +10 bit and the middle horizontal segment are off, and the upper left vertical segment is on.

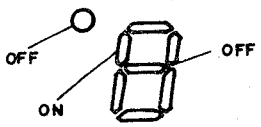
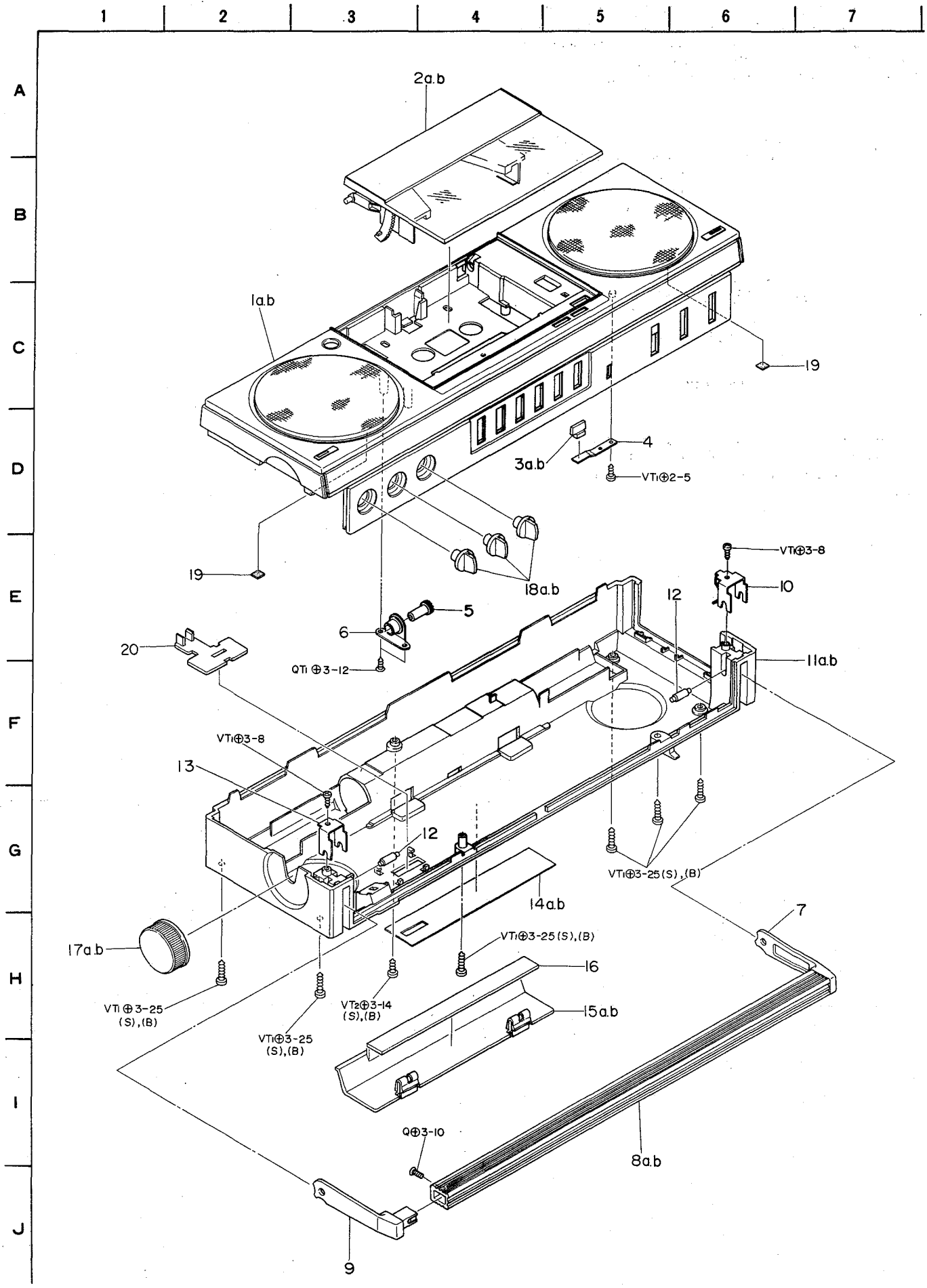


Figure 10.

This combination only occurs when "0" is displayed. Also, in the absence of D_4, when the above three LEDs are all off (when "1" or "7" is displayed), the MS operation would become unstable.

EXPLODED VIEW—1



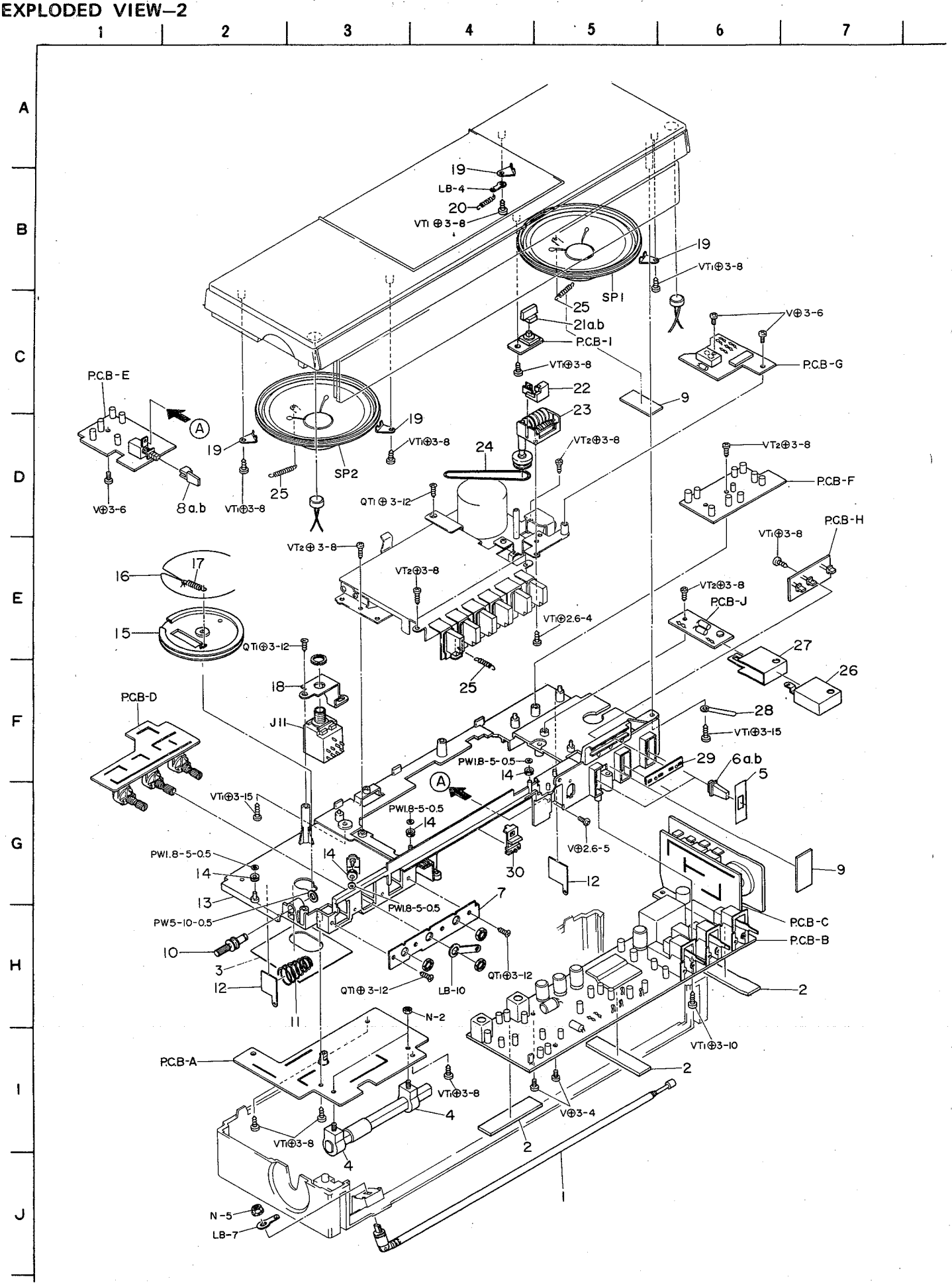
PARTS LIST

MECHANICAL PARTS

■ * mark in this part list shows exclusive part

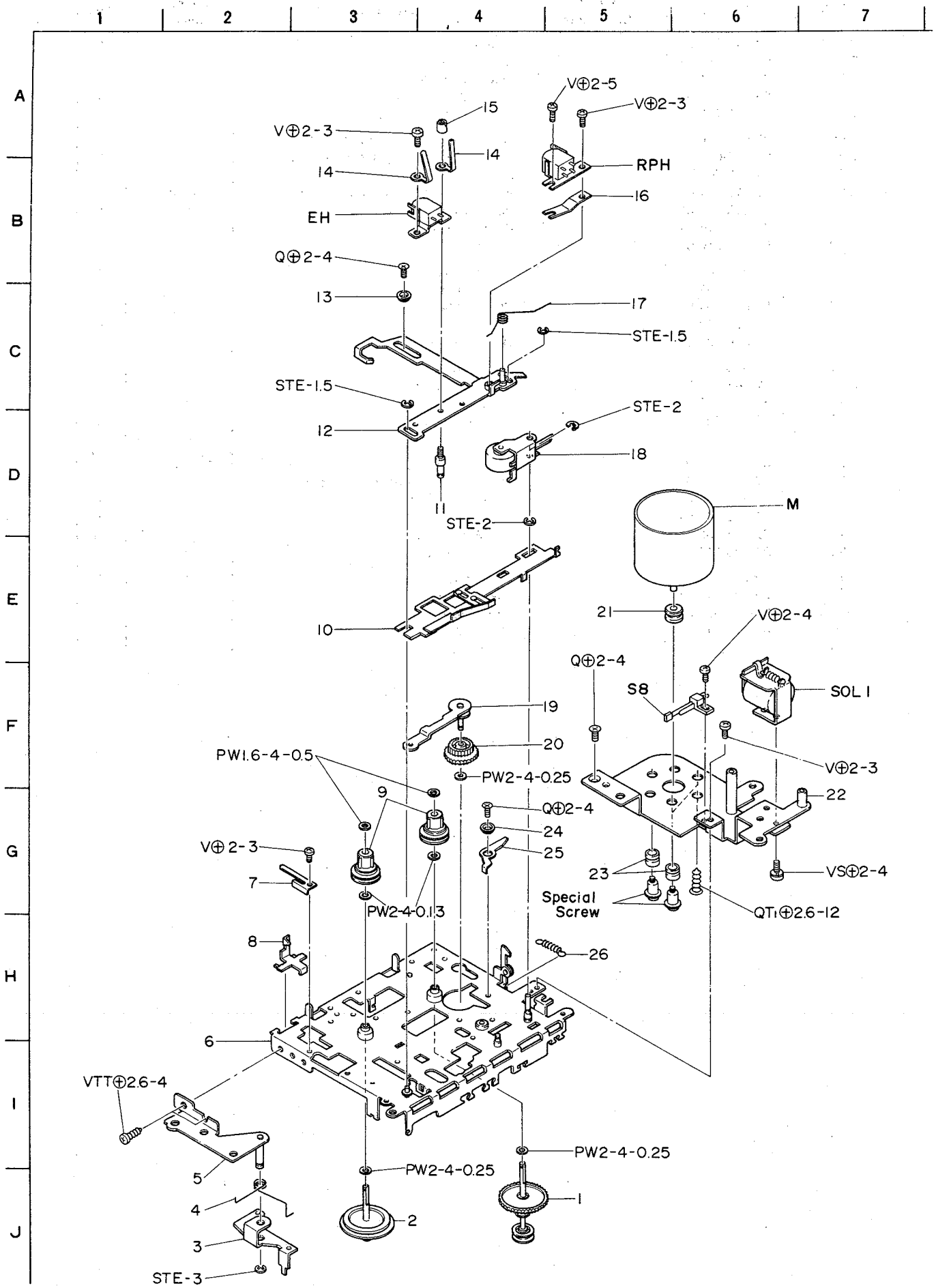
Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
1-1a	09-017-845-01		Main case ass'y (LE,LK model only)	*	1	
	82-576-061-01		Window, Dial	*	1	
	82-576-001-01		Cabinet, Main	*	1	
	82-576-003-01		Panel, Front	*	1	
	82-576-089-01		Panel, Top	*	1	
	82-576-010-01		Plate, Counter	*	1	
	82-576-009-01		Speaker panching	*	2	
	82-636-256-01		Holder, ECM		2	
	82-386-033-01		Label, Tape indication	AD-1250	1	
1-1b	09-017-846-01		Main case ass'y (BLE, BLK model only)	*	1	
	82-576-075-01		Window, Dial	*	1	
	82-576-031-01		Cabinet, Main	*	1	
	82-576-033-01		Panel, Front	*	1	
	82-576-090-01		Panel, Top	*	1	
	82-576-037-01		Plate, Counter	*	1	
	82-576-036-01		Speaker panching	*	2	
	82-636-256-01		Holder, ECM		2	
	82-386-033-01		Label, Tape indication	AD-1250	1	
1-2a	09-017-814-01		Cassette box ass'y (LE,LK model only)	*	1	
1-2b	09-017-836-01		Cassette box ass'y (BLE,BLK model only)	*	1	
	82-576-065-01		Name plate, Cassette window (LE,LK model only)	*	1	
	82-576-070-01		Name plate, Cassette window (BLE,BLK model only)	*	1	
	82-576-237-01		T-spring, Cassette box	*	1	
	82-576-007-01		Cassette box	*	1	
	82-576-229-01		P-spring, Cassette holder	*	2	
	82-576-006-01		Window, Cassette	*	1	
	87-321-096-01		QT_1 + 3 — 10		3	
1-3a	82-577-016-01		Push-button, MS (LE,LK model only)	TPR-936	1	
1-3b	82-576-046-01		Push-button, MS (BLE,BLK model only)	*	1	
1-4	82-576-242-01		P-spring, RESET button	*	1	
1-5	82-534-264-01		Gear, Oil damp		1	
1-6	82-534-250-01		Oil damp metal fitting ass'y		1	
1-7	82-576-094-01		Metal fitting L, Carrying handle		1	
1-8a	82-576-019-01		Handle grip (LE,LK model only)	*	1	
1-8b	82-576-040-01		Handle grip (BLE,BLK model only)	*	1	
1-9	82-576-093-01		Metal fitting R, Carrying handle		1	
1-10	82-576-224-01		Plate spring A, Carrying handle	*	1	
1-11a	82-576-002-01		Cabinet, Rear (LE,LK model only)	*	1	
1-11b	82-576-032-01		Cabinet, Rear (BLE,BLK model only)	*	1	
1-12	82-576-225-01		Shaft, Carrying handle	*	1	
1-13	82-576-226-01		Holder, Carrying handle	*	1	
1-14a	82-576-057-01		Name plate, Spec. (LE,LK model only)	*	1	
1-14b	82-576-079-01		Name plate, Spec. (BLE,BLK model only)	*	1	
1-15a	82-576-011-01		Battery room lid (LE,LK model only)	*	1	
1-15b	82-576-038-01		Battery room lid (BLE,BLK model only)	*	1	
1-16	82-576-239-01		Cushion, Battery	*	1	
1-17a	82-576-021-01		Knob, Tuning (LE,LK model only)	*	1	
1-17b	82-576-042-01		Knob, Tuning (BLE,BLK model only)	*	1	
1-18a	82-576-029-01		Knob, Selector (LE,LK model only)	*	3	
1-18b	82-576-044-01		Knob, Selector (BLE,BLK model only)	*	3	
1-19	82-576-244-01		Rubber cushion 1 — 1 — 4	*	2	
1-20	82-576-064-01		Knob, Band	*	1	

EXPLODED VIEW—2



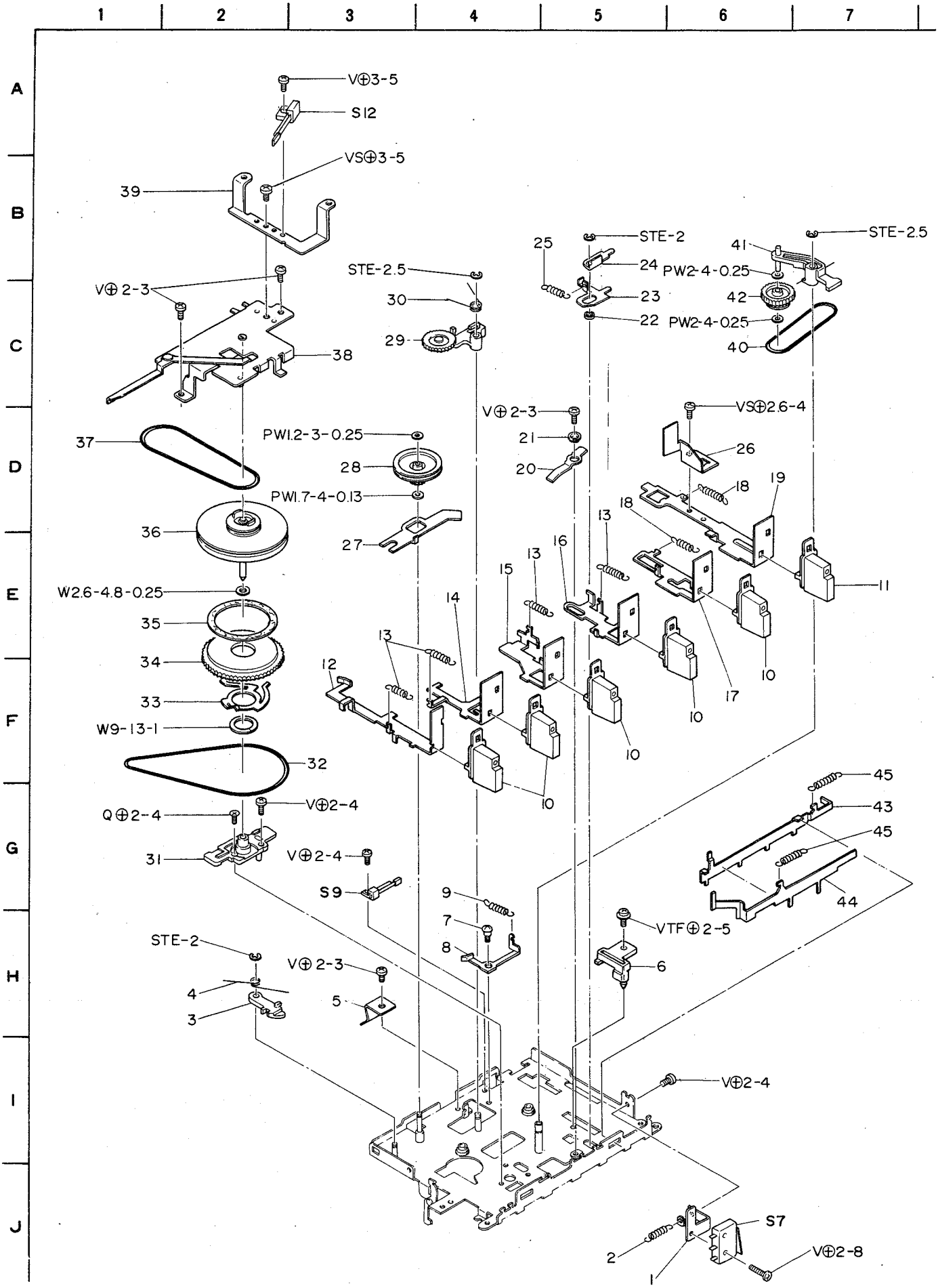
Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
2-1	87-043-040-01		Whip antenna		1	
2-2	87-063-113-01		Cushion WA		3	
2-3	82-576-691-01		Shield plate, SP A	*	1	
2-4	82-384-209-01		Holder A, Antenna		2	
2-5	82-576-233-01		Himeron cloth 9 — 32	*	3	
2-6a	82-576-016-01		Knob, Toggle (LE,LK model only)	*	3	
2-6b	82-576-045-01		Knob, Toggle (BLE,BLK model only)	*	3	
2-7	82-576-202-01		Plate VR	*	1	
2-8a	82-758-011-01		Push-button A (LE,LK model only)	SA-A10	1	
2-8b	82-576-028-01		Push-button A (BLE,BLK model only)	*	1	
2-9	87-063-116-01		Cushion 30-15		2	
2-10	82-576-216-01		Shaft, Tuning	*	1	
2-11	82-576-236-01		Spring, Battery	*	1	
2-12	87-038-032-01		Terminal plate, Battery		2	
2-13	82-576-201-01		Chassis, Main	*	1	
2-14	81-385-014-01		Roller		4	
2-15	82-576-203-01		Dial drum	*	1	
2-16	87-096-045-01		String, Dial		1	
2-17	82-541-291-01		E-spring, Dial		1	
2-18	82-576-217-01		Holder, Headphone	*	1	
2-19	82-274-222-01		Speaker, Metal fitting		4	
2-20	82-514-245-01		E-spring, Sleep metal fitting		1	
2-21a	82-577-016-01		Push-button, MS (LE,LK model only)	TPR-936	1	
2-21b	82-576-046-01		Push-button, MS (BLE,BLK model only)	*	1	
2-22	82-576-050-01		Reset button	*	1	
2-23	87-040-136-01		Counter		1	
2-24	82-576-238-01		Belt B, Counter	*	1	
2-25	82-576-241-01		E-spring, Earth	*	3	
2-26	82-576-644-01		Shield plate	*	1	
2-27	82-576-645-01		Sheet, Fiber	*	1	
2-28	87-038-039-01		Wire binder		1	
2-29	82-576-240-01		Plate, LED	*	1	
2-30	82-576-030-01		Pointer, Dial	*	1	

EXPLODED VIEW–3



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
3-1	82-586-224-01		Friction ass'y		1	
3-2	82-586-223-01		Take-up pulley ass'y		1	
3-3	82-576-214-01		Lever, REC	*	1	
3-4	82-576-232-01		T-spring, REC	*	1	
3-5	82-576-211-01		Mechanism ass'y	*	1	
3-6	82-586-275-01		Chassis ass'y		1	
3-7	82-586-236-01		Plate spring, REC blocking		1	
3-8	82-586-235-01		Lever, REC blocking		1	
3-9	82-586-259-01		Reel platform		2	
3-10	82-586-209-01		Play lock lever ass'y		1	
3-11	82-586-241-01		Shaft B, REC lock		1	
3-12	82-586-203-01		Head, Slide arm B ass'y		1	
3-13	82-586-245-01		Guide, Slide lever		1	
3-14	82-586-238-01		Clamp B		2	
3-15	82-586-243-01		Screw, EH		1	
3-16	82-586-233-01		Plate spring, Head adjust		1	
3-17	82-586-269-01		Spring, Pinch roller lever		1	
3-18	82-586-239-01		Pinch roller ass'y		1	
3-19	82-586-205-01		F.F gear arm ass'y		1	
3-20	82-586-249-01		Gear, F.F		1	
3-21	82-586-279-01		Motr, Pulley		1	
3-22	82-586-278-01		Motor holder ass'y		1	
3-23	87-087-030-01		Rubber cushion		3	
3-24	82-586-242-01		Shaft, Eject auxiliary lever		1	
3-25	82-586-237-01		Eject auxiliary lever B		1	
3-26	82-586-265-01		Spring, REC lock		1	

EXPLODED VIEW—4



ELECTRICAL MAIN PARTS LIST

Symbol No.	Part No.	Description
≪TUNER CIRCUIT BOARD SECTION≫		
PCB-A	82-576-690-01	Tuner circuit board
IC1	87-027-765-01	IC, TA7614AP (W)
IC2	87-027-507-01	IC, TA7323AP (O,Y)
Q1	87-026-183-01	FET, 2SK212 (E)
Q2,3,4	89-319-232-01	Transistor, 2SC1923 (R)
Q5	89-318-155-01	Transistor, 2SC1815 (GR)
Q6,7	89-318-154-01	Transistor, 2SC1815 (Y)
D1	88-052-188-11	Diode, 1S188FM
D2	87-017-004-01	Diode, SD-117
L1	87-006-016-01	FM antenna coil, 1-¾t
L2	87-006-017-01	FM OSC coil, 2-¼t
L3,4	82-576-649-01	LW, MW bar antenna coil
L5	82-576-670-01	SW antenna coil
L6	82-561-642-01	LW OSC coil
L7	87-007-098-01	MW OSC coil
L8	82-576-678-01	SW OSC coil
L9	87-003-051-01	Choke coil, 470μH
L10	88-005-121-01	Choke coil, 2.2μH
L11	87-008-195-01	FM quad coil
BPF1	87-030-169-01	FM band pass filter
CF1,2	87-008-169-01	FM ceramic filter, 230K
CF3	87-008-231-01	AM ceramic filter
IFT1	87-008-232-01	AM IFT
VC1,2,3,4 TC2,3,5,7	87-011-120-01	PVC
TC1,4	87-011-126-01	Trimmer, 8PF
TC5,7	87-011-127-01	Trimmer, 30PF
S6	82-576-671-01	Slide switch (BAND SELECTOR)
SFR1	87-021-677-01	Semi-fixed resistor, 5kΩ-B
		< **Resistor** >
R48	87-029-057-01	22Ω Nonflammable
		< **Capacitors** >
C40	87-015-482-01	4.7μF 16V Electrolytic BP
C64	87-014-033-01	100PF PP
C63	87-014-045-01	330PF PP
≪REC/PB CIRCUIT BOARD SECTION≫		
PCB-B	*	REC/PB circuit board
IC1	87-027-714-01	IC, M51542L
IC2	87-027-540-01	IC, AN7146
Q1,2,3,4, 7,8	89-318-154-01	Transistor, 2SC1815 (Y)
Q9	89-313-835-01	Transistor, 2SC1383NC (Q)
D1,2,3	87-027-097-01	Diode, 1S1555
D4	87-027-555-01	Zener diode, HZ5C2
D5,6	88-052-188-11	Diode, 1S188FM
L1,2,3,4	87-005-088-01	Micro inductor, 5.6mH
L5,6	82-938-642-11	Bias trap coil
L7	82-401-661-01	Choke coil, 600μH
L8	87-003-039-01	Choke coil, 36μH
CP1	82-576-618-01	Bias OSC block
SFR1,2	87-021-307-01	Semi-fixed resistor, 50kΩ-B
S1	82-576-614-01	Slide switch (REC/PB)
S2	82-576-617-01	Slide switch (FUNCTION)
S3	82-576-615-01	Lever slide switch (TAPE SELECTOR)
S4	82-576-616-01	Lever slide switch (MODE)
	82-576-621-01	Heat sink

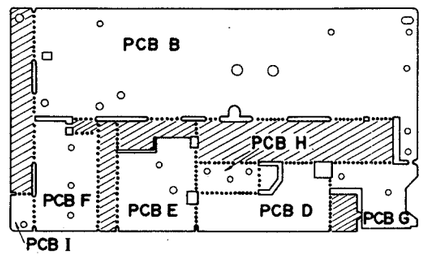
Symbol No.	Part No.	Description
≪JACK CIRCUIT BOARD SECTION≫		
PCB-C	82-576-684-01	Jack circuit board
Q1,2	89-318-154-01	Transistor, 2SC1815 (Y)
J1~5	82-576-685-01	Jack plate ass'y SL (MIC, EXT SP, REC/PB) (LE, LK model only)
J1~5	82-576-686-01	Jack plate ass'y BL (MIC, EXT SP, REC/PB) (BLE, BLK model only)
S11	82-576-610-01	Slide switch (OSC)
		< **Capacitor** >
C1,2	87-015-312-01	0.22μF 10V Aluminum solid
≪VOLUME CIRCUIT BOARD SECTION≫		
PCB-D	*	Volume circuit board
Q5,6	89-318-154-01	Transistor, 2SC1815 (Y)
VR1	82-576-604-01	Volume, 20kΩ-W (BALANCE)
VR2	82-576-605-01	Volume, 20kΩ-A (TONE)
VR3	82-576-606-01	Volume, 50kΩ-B (VOLUME)
≪AUTO STOP CIRCUIT BOARD SECTION≫		
PCB-E	*	AUTO STOP circuit board
IC1	82-576-675-01	IC, DN-837
Q2,3,4	89-318-154-01	Transistor, 2SC1815 (Y)
D1,2,3,4,5	87-027-097-01	Diode, 1S1555
S5	87-031-609-01	Push-switch (REC MUTE)
≪AUTO CIRCUIT BOARD SECTION≫		
PCB-F	*	Auto circuit board
Q1	89-318-155-01	Transistor, 2SC1815 (GR)
Q2,3,4,5	89-318-154-01	Transistor, 2SC1815 (Y)
Q6	89-318-834-01	Transistor, 2SC1383 (S)
Q7	89-110-154-01	Transistor, 2SA1015 (Y)
D1,2,4,5	87-027-097-01	Diode, 1S1555
D3	87-027-365-01	Diode, S5277B
		< **Capacitor** >
C7	87-015-425-01	1μF 25V Aluminum solid
≪MS CIRCUIT BOARD SECTION≫		
PCB-G	*	MS circuit board
IC1	87-027-713-01	IC, TC9138P
Q1	89-111-154-51	Transistor, 2SA1115 (E,F)
D1,2,3,4	87-027-097-01	Diode, 1S1555
D5	87-027-716-01	LED, GL-9PR22
D6	87-027-715-01	LED, GL-8P03D
SFR1	87-021-503-01	Semi-fixed resistor, 30kΩ-B
		< **Capacitor** >
C1	87-015-318-01	0.1μF 10V Aluminum solid
≪LED CIRCUIT BOARD SECTION≫		
PCB-H	*	LED circuit board
D1,2,3	87-027-716-01	LED, GL-9PR22
≪SWITCH CIRCUIT BOARD SECTION≫		
PCB-I	*	Switch circuit board
S10	86-992-604-01	Push-switch (PROGRAM)
≪MISCELLANEOUS≫		
RPH	87-046-159-01	REC/PB head

Symbol No.	Part No.	Description
EH	87-046-189-01	Erase head
ECM1,2	87-041-016-01	ECM, B3
SP1,2	82-576-612-11	Speaker
M	82-576-643-11	Motor
SOL1	82-576-602-01	Solenoid
J11	87-032-959-01	Jack, 6.3φ (PHONES)
S7	87-031-613-01	Micro switch (TAPE MAIN)
S8,9	87-031-361-01	Leaf switch (PAUSE, MUTING)
S12	82-576-682-01	Leaf switch (STOP/EJECT)

Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board 82-576-633-21



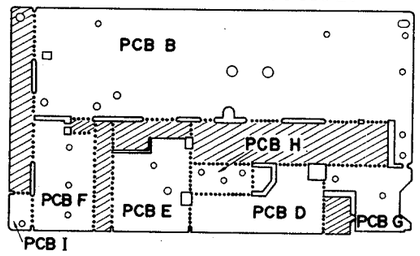
Symbol No.	Part No.	Description
≪JACK CIRCUIT BOARD SECTION≫		
PCB-C	82-576-684-01	Jack circuit board
Q1,2	89-318-154-01	Transistor, 2SC1815 (Y)
J1~5	82-576-685-01	Jack plate ass'y SL (MIC, EXT SP, REC/PB) (LE, LK model only)
J1~5	82-576-686-01	Jack plate ass'y BL (MIC, EXT SP, REC/PB) (BLE, BLK model only)
S11	82-576-610-01	Slide switch (OSC)
		< **Capacitor** >
C1,2	87-015-312-01	0.22μF 10V Aluminum solid
≪VOLUME CIRCUIT BOARD SECTION≫		
PCB-D	*	Volume circuit board
Q5,6	89-318-154-01	Transistor, 2SC1815 (Y)
VR1	82-576-604-01	Volume, 20kΩ-W (BALANCE)
VR2	82-576-605-01	Volume, 20kΩ-A (TONE)
VR3	82-576-606-01	Volume, 50kΩ-B (VOLUME)
≪AUTO STOP CIRCUIT BOARD SECTION≫		
PCB-E	*	AUTO STOP circuit board
IC1	82-576-675-01	IC, DN-837
Q2,3,4	89-318-154-01	Transistor, 2SC1815 (Y)
D1,2,3,4,5	87-027-097-01	Diode, 1S1555
S5	87-031-609-01	Push-switch (REC MUTE)
≪AUTO CIRCUIT BOARD SECTION≫		
PCB-F	*	Auto circuit board
Q1	89-318-155-01	Transistor, 2SC1815 (GR)
Q2,3,4,5	89-318-154-01	Transistor, 2SC1815 (Y)
Q6	89-318-834-01	Transistor, 2SC1383 (S)
Q7	89-110-154-01	Transistor, 2SA1015 (Y)
D1,2,4,5	87-027-097-01	Diode, 1S1555
D3	87-027-365-01	Diode, S5277B
		< **Capacitor** >
C7	87-015-425-01	1μF 25V Aluminum solid
≪MS CIRCUIT BOARD SECTION≫		
PCB-G	*	MS circuit board
IC1	87-027-713-01	IC, TC9138P
Q1	89-111-154-51	Transistor, 2SA1115 (E,F)
D1,2,3,4	87-027-097-01	Diode, 1S1555
D5	87-027-716-01	LED, GL-9PR22
D6	87-027-715-01	LED, GL-8P03D
SFR1	87-021-503-01	Semi-fixed resistor, 30kΩ-B
		< **Capacitor** >
C1	87-015-318-01	0.1μF 10V Aluminum solid
≪LED CIRCUIT BOARD SECTION≫		
PCB-H	*	LED circuit board
D1,2,3	87-027-716-01	LED, GL-9PR22
≪SWITCH CIRCUIT BOARD SECTION≫		
PCB-I	*	Switch circuit board
S10	86-992-604-01	Push-switch (PROGRAM)
≪MISCELLANEOUS≫		
RPH	87-046-159-01	REC/PB head

Symbol No.	Part No.	Description
EH	87-046-189-01	Erase head
ECM1,2	87-041-016-01	ECM, B3
SP1,2	82-576-612-11	Speaker
M	82-576-643-11	Motor
SOL1	82-576-602-01	Solenoid
J11	87-032-959-01	Jack, 6.3φ (PHONES)
S7	87-031-613-01	Micro switch (TAPE MAIN)
S8,9	87-031-361-01	Leaf switch (PAUSE, MUTING)
S12	82-576-682-01	Leaf switch (STOP/EJECT)

Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

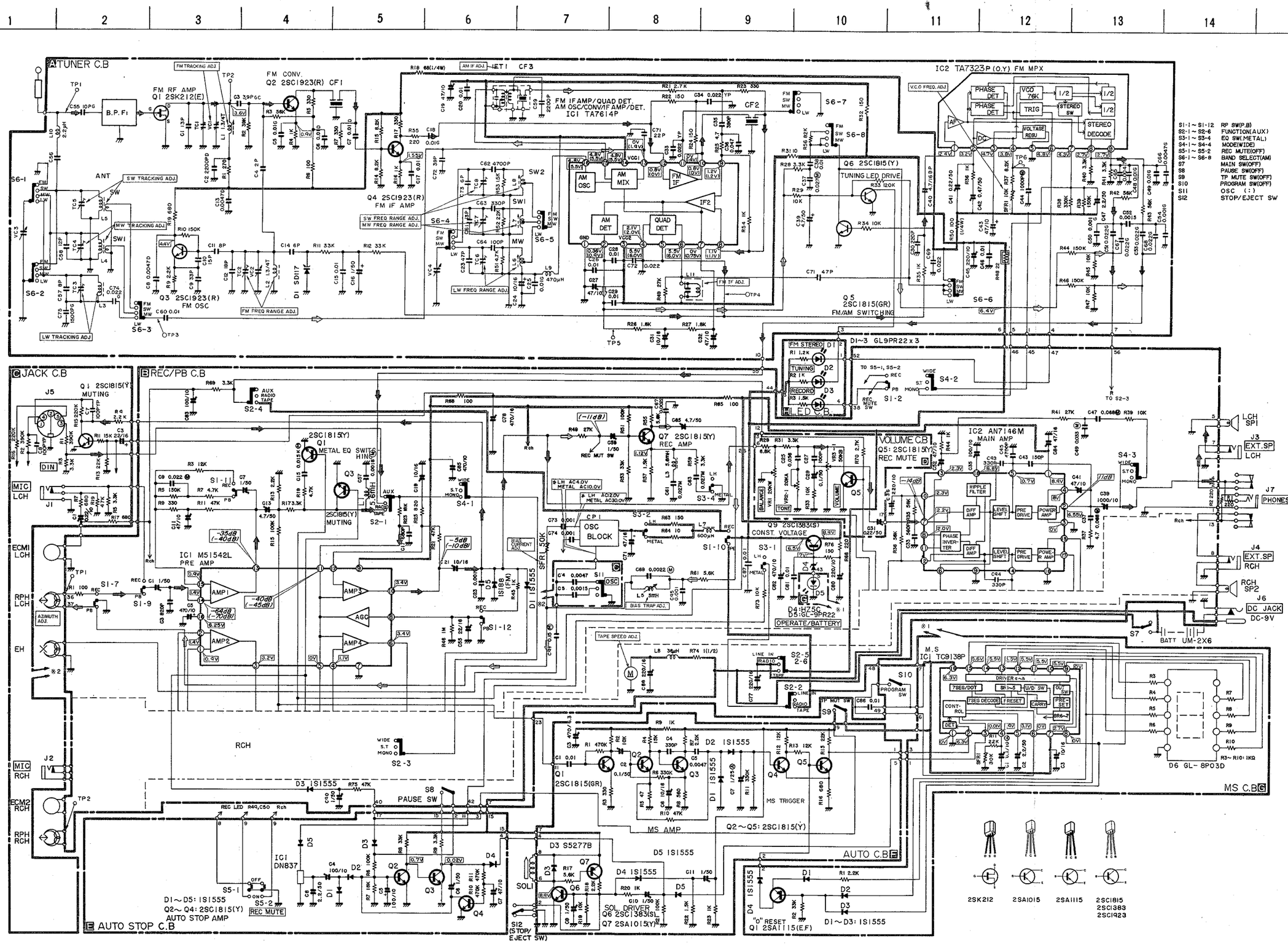
Combination circuit board 82-576-633-21



MEMO

CS-350LE,LK CS-350LE,LK

SCHEMATIC DIAGRAM



NOTE

1) ■
2) ,
3) T t E A v F Y C s T a C
4)
5)
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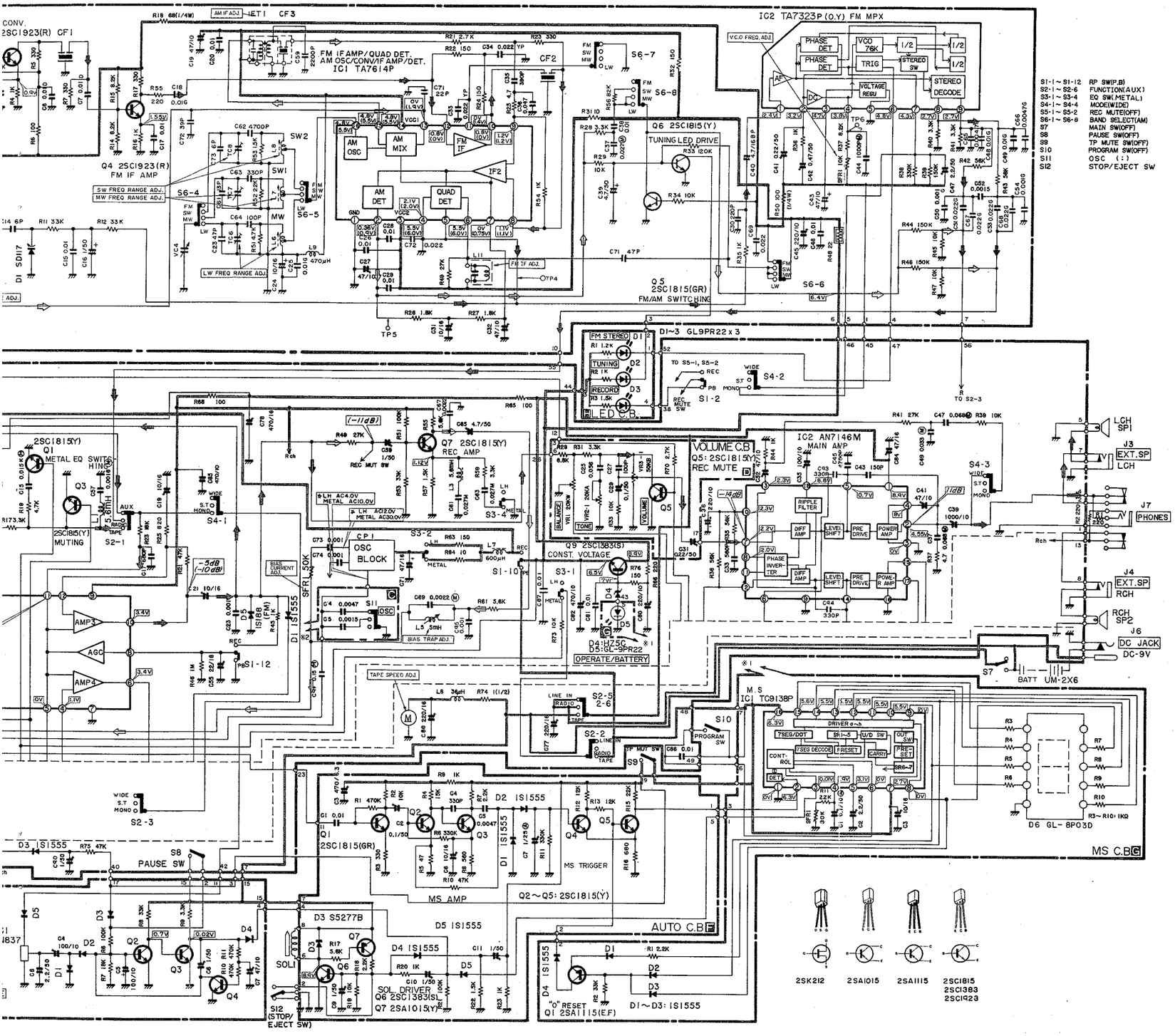
• T n



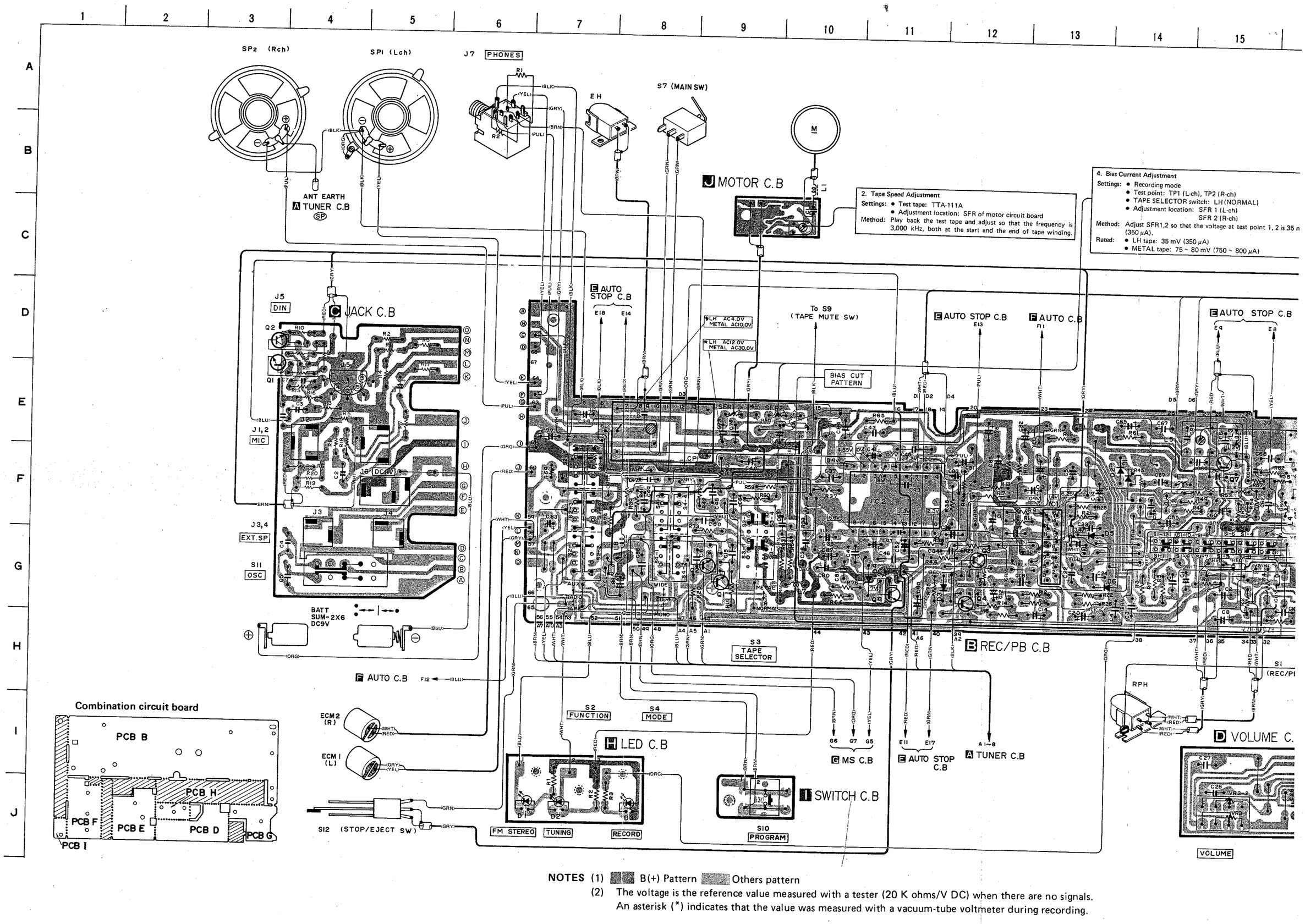
NOTES:

1) B (+) power supply
2) Signal path
   Rec path, AM signal path.
3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.
   But ( ) is with AM reception or recording.
   An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
4) Resistors with no designation have a rated power of ⅛W and a tolerance of ±5%.
5) Capacitors with no designation have a dielectric strength of less than 50WV.
6) The only capacitor tolerances indicated are ±5% (J) and ±10% (K).
7) Ceramic capacitor symbols:
   - For temperature compensation (SL)
   - High dielectric constant system (YY)
   - High dielectric constant system (YW, YP, YZ)
   - Semiconductor ceramic
8) Explanation of symbols
   - (M) Mylar capacitor
   - (A) Aluminum solid capacitor
   - (PP) Polypropylene film capacitor
   - (BP) Bi-polarized capacitor
   - (T) Tantalum capacitor
   - Nonflammable resistor

- This schematic diagram is subject to change without notice in the interests of improved performance.

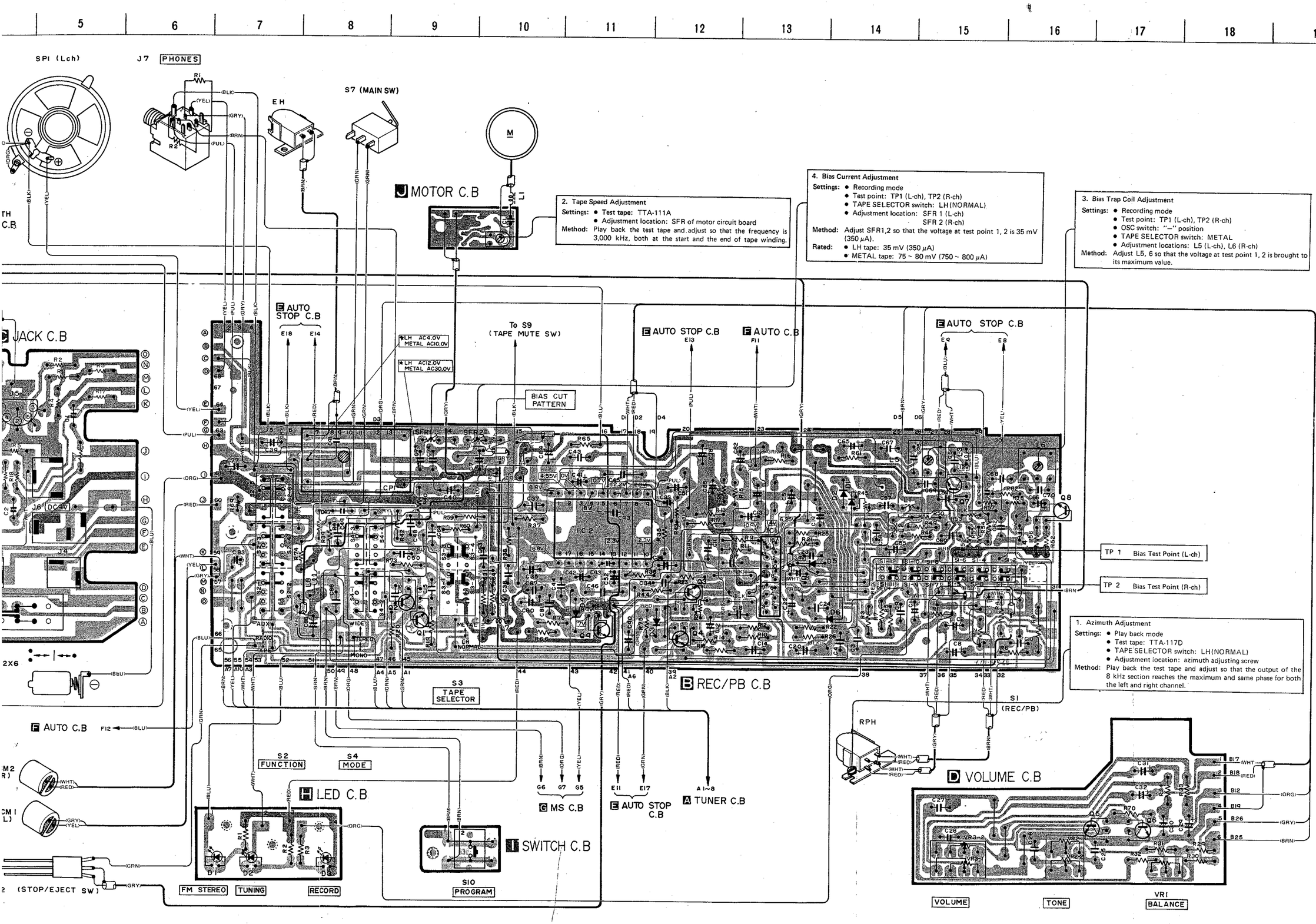
AIWA

WIRING–1



NOTES (1) B(+) Pattern Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.



NOTES (1) ▓▓ B(+) Pattern ▒▒ Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

MW Tracking Adj.
L4 ..... 600 kHz
TC4 ..... 1,400 kHz

SW Tracking Adj.
L5 ..... 5.9 MHz
TC5 ..... 18.0 MHz

TP 3 AM IF Input

AM IF Adj.
IFT1 ..... 465 kHz

FM Freq. Range Adjustment
L2 ..... 87.4 MHz
TC2 ..... 108.3 MHz

TP 2 FM IF Input

FM Tracking Adjustment
L1 ..... 88.0 MHz
TC1 ..... 108.0 MHz

LW Freq. Range Adj.
L6 ..... 145 kHz
TC6 ..... 320 kHz

TP 1 FM RF Input

LW Tracking Adjustment
L3 ..... 145 kHz
TC3 ..... 320 kHz

MW Freq. Range Adj.
L7 ..... 515 kHz
TC7 ..... 1,650 kHz

SW Freq. Range Adj.
L8 ..... 5.8 MHz
TC8 ..... 18.5 MHz

WHIP ANTENNA

TP 5 AM DET Output

TP 4 FM DET Output

FM IF Adjustment
LI1 ..... 10.7 MHz

TP 6 V.C.O. Freq. Test Point

V.C.O. Frequency Adjustment
Settings:
- Adjustment location: SFR1

Method:
Adjust SFR1 so that the frequency become 76 kHz ± 100 Hz.

IC1

1	———	9	1.2V (1.2V)
2	0.36V (0.9V)	10	0.8V (0V)
3	5.5V (6.0V)	11	0V (1.4V)
4	2.1V (2.0V)	12	0.8V (0V)
5	———	13	0V (1.9V)
6	5.5V (6.0V)	14	4.8V (5.5V)
7	0V (0.75V)	15	4.8V (5.5V)
8	1.1V (1.1V)	16	4.8 (5.5V)

A TUNER C.B

IC2

1	2.4V
2	3.2V
3	4.7V
4	3.8V
5	———
6	4.8V
7	4.3V
8	2.7V
9	2.7V

B REC/PB C.B

(WHT) → B54
(GRN) → B46
(ORG) → B45
(BLU) → B47
(BLK) → B39
(RED) → B41
(BRN) → B56
(YEL) → B55

B REC/PB C.B

B23

S6
BAND SELECTOR

L4
MW BAR ANTENNA

L3
LW BAR ANTENNA

TC7
(MW OSC TRIMMER)

TC4
(MW ANT TRIMMER)

TC2
(FM OSC TRIMMER)

TC5
(SW ANT TRIMMER)

B REC/PB C.B

B48 (ORG)
B49 (BRN)
B43 (YEL)

IC1

1	0V	9	0V
2	6.3V	10	5.5V
3	0.01V	11	5.5V
4	1.9V	12	5.5V
5	3.1V	13	5.5V
6	0V	14	5.5V
7	2.7V	15	5.6V
8	0V	16	6.3V

OPERATE/BATTERY

F AUTO C.B

S8
(PAUSE SW)

S9
(TAPE MUTE SW)

B15 (BLK)

B REC/PB C.B

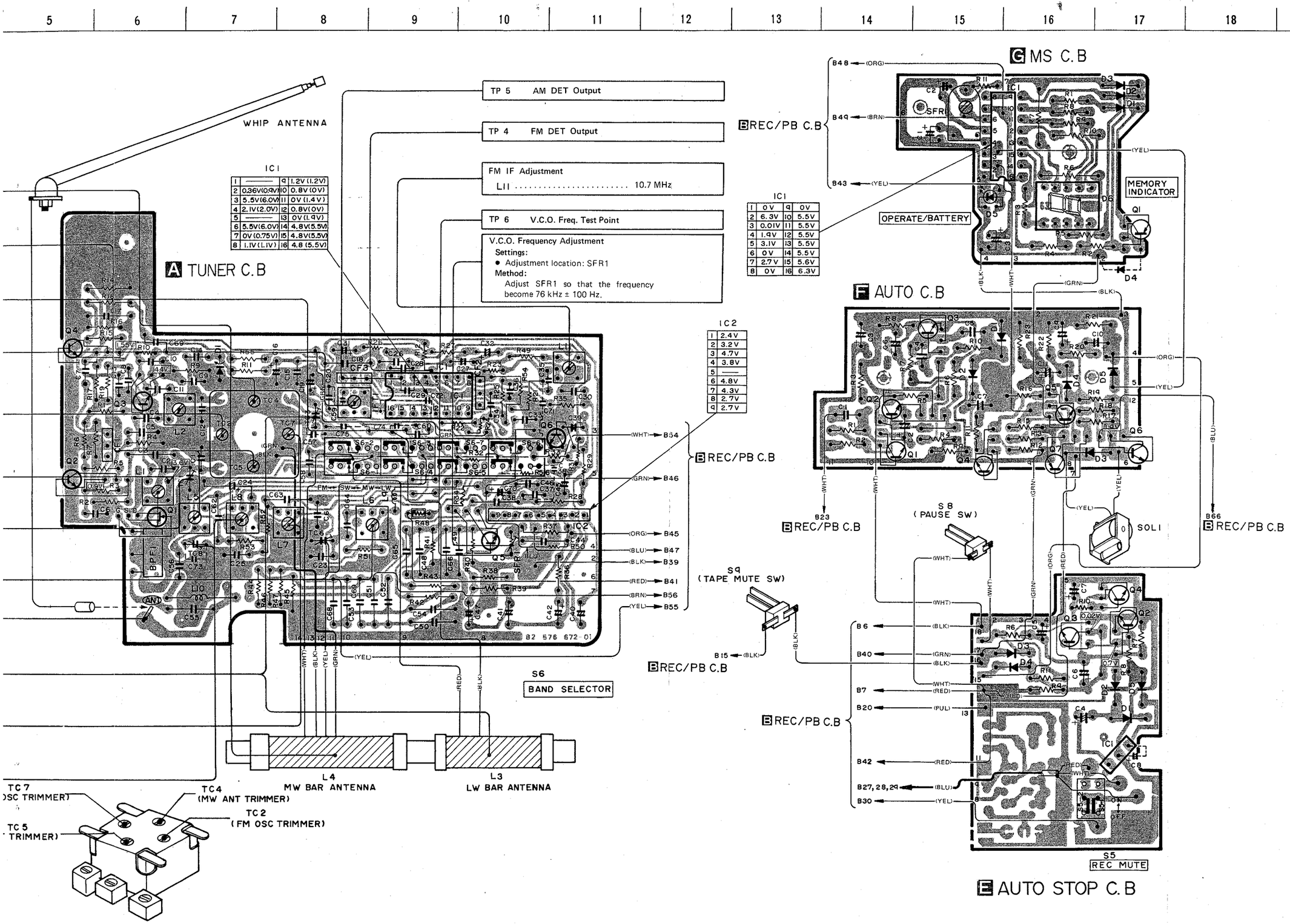
B6 (BLK)
B40 (GRN)
(BLK)
B7 (WHT)
(RED)
B20 (PUL)

B REC/PB C.B

B42 (RED)
B27, 28, 29 (BLU)
B30 (YEL)

E AUTO

NOTES (1) B(+) Pattern Others pattern
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no
But ( ) is with AM reception.



IC1			
1	———	9	1.2V (1.2V)
2	0.36V(0.9V)	10	0.8V (0V)
3	5.5V(6.0V)	11	0V (1.4V)
4	2.1V(2.0V)	12	0.8V(0V)
5	———	13	0V (1.9V)
6	5.5V(6.0V)	14	4.8V(5.5V)
7	0V (0.75V)	15	4.8V(5.5V)
8	1.1V (1.1V)	16	4.8 (5.5V)

IC1			
1	0V	9	0V
2	6.3V	10	5.5V
3	0.01V	11	5.5V
4	1.9V	12	5.5V
5	3.1V	13	5.5V
6	0V	14	5.5V
7	2.7V	15	5.6V
8	0V	16	6.3V

IC2	
1	2.4V
2	3.2V
3	4.7V
4	3.8V
5	———
6	4.8V
7	4.3V
8	2.7V
9	2.7V

NOTES (1) B(+) Pattern Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals. But ( ) is with AM reception.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
4-1	82-586-231-01		Micro switch angle		1	
4-2	82-586-265-01		REC lock spring		2	
4-3	82-586-257-01		Pause lock		1	
4-4	82-586-271-01		Spring, Pause lock		1	
4-5	82-586-262-01		Plate spring, Cassette		1	
4-6	82-586-256-01		Guide B, Cassette		1	
4-7	82-586-285-01		Shaft, MS switch		1	
4-8	82-586-283-01		Lever, MS switch		1	
4-9	82-586-284-01		Spring, MS switch lever		1	
4-10	82-576-014-01		Push-button	*	5	
4-11	82-576-025-01		Push-button, REC		1	
4-12	82-586-207-01		Pause lever B ass'y		1	
4-13	82-586-264-01		Spring, Control lever		4	
4-14	82-586-221-01		Lever B, STOP		1	
4-15	82-586-220-01		Lever B, F.F.		1	
4-16	82-586-219-01		Lever B, REW		1	
4-17	82-586-218-01		Lever B, PLAY		1	
4-18	82-586-266-01		Play lever spring		2	
4-19	82-586-217-01		Lever B, REC		1	
4-20	82-586-230-01		Lever B, REW		1	
4-21	82-586-242-01		Shaft, Eject auxiliary lever		1	
4-22	82-586-234-01		Collar, REC lock		1	
4-23	82-586-228-01		REC lock B		1	
4-24	82-586-229-01		REV auxiliary lever		1	
4-25	82-586-267-01		Spring, Slide lever		1	
4-26	82-576-215-01		P-spring, REC	*	1	
4-27	82-586-206-01		Lever, Take-up pulley		1	
4-28	82-586-240-01		Gear, Senter		1	
4-29	82-586-273-01		Splice arm ass'y		1	
4-30	82-586-270-01		Spring, Take-up lever		1	
4-31	82-586-255-01		Cassette guide ass'y		1	
4-32	82-586-276-01		Belt C, Motor		1	
4-33	82-586-253-01		Plate spring, Clutch		1	
4-34	82-586-252-01		Gear, Flywheel		1	
4-35	82-586-251-01		Felt		1	
4-36	82-586-250-01		Flywheel ass'y		1	
4-37	82-586-248-01		Belt, Senter		1	
4-38	82-586-213-01		Flywheel bearing plate ass'y		1	
4-39	82-576-231-01		Metal fitting, Circuit board	*	1	
4-40	82-586-247-01		Belt, REW		1	
4-41	82-586-222-01		REW arm ass'y		1	
4-42	82-586-244-01		Gear, REW		1	
4-43	82-586-227-01		Lever B, Switch		1	
4-44	82-586-226-01		F.F REW lock lever		1	
4-45	82-586-268-01		Spring, Lever lock		2	

ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
1	82-576-858-11		Printed indiv., Packing	*	1	
2	82-576-852-21		Cushion L, Printed indiv.	*	1	
3	82-576-853-01		Cushion R, Printed indiv.	*	1	
4	87-056-625-01		Poly-vinyl sack		1	
5	82-576-908-01		Sticker, POP	*	1	
6	87-051-171-11		Poly-vinyl sack		1	
7	87-056-009-41		Distributors list		1	
8a	82-576-905-01		Instructions booklet (LE, BLE model only)	*	1	
8b	82-576-906-01		Instructions booklet (LK, BLK model only)	*	1	
9	92-916-720-01		Tape cassette		1	
10a	86-481-803-01		AC adapter AC-903E (LE, BLE model only)		1	
10b	86-481-804-01		AC adapter AC-903K (LK, BLK model only)		1	